

On *Palpibracus* Rondani (Diptera: Muscidae) with Descriptions of New Species

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The distributions of all 16 currently recognized species of the Neotropical genus *Palpibracus* (Diptera: Muscidae) are restricted to Chile and Argentina. A large quantity of material of this genus, especially from Chile, was found in the collections of the California Academy of Sciences (San Francisco, California). Half of the known species of *Palpibracus* are represented in these collections, several of them by large series, as well as three new species, which are herein described — *P. schlingeri* (type-locality: Chile, Santiago), *P. flavithorax* (type-locality: Chile, Magallanes), and *P. vitatus* (type-locality: Chile, Cautin). Diagnoses and illustrations of the patterns of dorsum of mesonotum, pleurae and abdomen are presented for all studied species, and descriptions and illustrations of male and female terminalia are presented for the new ones.

Palpibracus is a Neotropical muscid genus, with its geographical distribution restricted to Chile and Argentina (Carvalho and Couri 2002; Carvalho et al. 2005; Soares and Carvalho 2005a). *Palpibracus* was proposed by Rondani (1864) as a replacement name for *Bractypalpus* Macquart, 1851 (preocc.). The original description included only one species — *B. pilosus* [= *P. pilosus*] (Macquart 1851). Albuquerque (1951) proposed the synonymy of *Darwinomyia* Malloch with *Palpibracus*.

Among the most recent contributions to the taxonomy of the genus, Carvalho (1989a) presented a revision with redescriptions and illustrations of the species, whereas Lopes and Khouri (1996) and Pamplona and Couri (2000) each described a new species, respectively *P. carvalhoi* and *P. valdiviensis*, the latter transferred by Soares and Carvalho (2004) to *Brachygasterina* Macquart.

The systematic position of the genus was discussed by Carvalho (1989b) and Soares and Carvalho (2005b), who also described a new species, *P. darwini*. According to Soares and Carvalho (2005b), *Palpibracus* is a monophyletic genus, based largely on color characters, that is all of the species show beautiful shiny black and yellow patterns (shiny violet in *P. lancifer*) on both thorax and abdomen that are important taxonomic characters for their identification.

Soares and Carvalho (2005a) described areas of endemism for *Palpibracus* and analyzed its relationships based on three historical biogeographical methods.

According to the latest catalog of the Muscidae of the Neotropical region (Carvalho et al. 2005), *Palpibracus* includes 17 species — *P. albuquerquei* Carvalho, 1989; *P. apicalis* (Malloch, 1934); *P. carvalhoi* Lopes and Khouri 1996; *P. chilensis* (Bigot, 1885); *P. confusus* (Malloch, 1922); *P. fasciculatus* (Malloch, 1934); *P. lancifer* (Malloch, 1934); *P. nigriventris* (Malloch, 1928); *P. peruvianus* (Malloch, 1929); *P. pilosus* (Macquart, 1851); *P. separatus* (Malloch, 1934); *P. similis*

(Malloch, 1934), *P. spicatus* (Malloch, 1934); *P. trivittatus* (Malloch, 1934), *P. univittatus* (Bigot, 1857), *P. valdiviensis* Pamplona and Couri, 2000 and *P. veneris* (Bigot, 1888). To this list, three updates should be added: the transfer of *P. valdiviensis* to *Brachygasterina* (Soares and Carvalho 2004) and of *P. apicalis* to *Psilochaeta*, tentatively placed in this genus by Soares and Carvalho (2005b) and the inclusion of *P. darwini*, a new species also described in this latter reference.

The purpose of this contribution is to present the results of the study of the California Academy of Sciences Diptera collection, in which 11 species of *Palpiracus* were found, three of them new. Diagnoses and illustrations of the patterns of dorsum of mesonotum, pleurae and abdomen are presented for all studied species and descriptions and illustrations of male and female terminalia are presented for the new ones.

MATERIALS AND METHODS

The Diptera collection of the California Academy of Sciences (CAS, San Francisco, California) has a large quantity of unidentified material from southern South America. Most of the material was collected by M.E. Irwin and E.I. Schlinger in 1966 in Chile. For several of the species there are large series, which makes possible the observation of some color variation.

Holotype and paratype material of the new species and most of the material examined is deposited at CAS. Some specimens will be deposited at Museu Nacional, Rio de Janeiro collection (MNRJ) as indicated in the Material examined sections of the species descriptions.

Dissected terminalia were placed in glycerin in a microvial pinned with the respective specimen.

Color photos were made using Syncroscopy/JVC Auto-Montage with Leica M 420 optical microscope; drawings were made using an Olympus CH-2 optical microscope with camera lucida.

SYSTEMATICS: DESCRIPTIONS AND REDESCRIPTIONS

A diagnosis of the genus and a discussion of its monophyly were published by Carvalho and Couri (2002) and more recently by Soares and Carvalho (2005b).

Palpiracus carvalhoi Lopes and Khouri, 1996

HOLOTYPE.— Male, deposited at Museu Nacional (Rio de Janeiro, Brasil). Type-locality: Chile.

DIAGNOSIS.— Palpus yellow, antennae brown, apex of pedicel and base of flagellum yellow; frons reddish brown; female with interfrontal setae; katepimeron setulose; dorsum of mesonotum yellow with a median black central vitta, reaching the base of scutellum, a little larger than acrostichal row of setae but not reaching the dorsocentral row of setae; scutellum yellow with apex pale yellow (Fig. 1); pleurae with anepisternum, anepimeron, katepimeron and inferior half of meron brown; katepisternum and anterior and posterior spiracles yellow (Fig. 2); legs yellow with median third of fore femur brown; mid and hind femora with a brown ring on apical third; male legs: fore coxa without apical spine; mid femur with 4 weak setae on basal half; hind tibia slightly bent with fine anteroventral and posteroventral hairs; abdomen blackish brown with grayish pollinosity; abdomen as in Fig. 3.

COLOR VARIATION.— The brown color on anepisternum, anepimeron, katepimeron and meron can be more or less extensive.

MATERIAL EXAMINED.— **CHILE: Concepcion:** 1904, E.E. Reed collection (1 male.); **Bio-Bio:** El Abanico, Ross and Michelbacher, 30 December 1950 (2 males: 1 male, MNRJ); **Santiago:** Quebrada de la Plata Fundo, Rinconada, Maipu, 30°31'S 70°47'W, 510 m. M.E Irwin, Malaise, 26 January 1966 (7 females);

19 February 1966 (1 female); 20 February 1966 (1 female); 22 March 1966 (11 females); 23 March 1966 (10 females); 24 March 1966 (5 females); 27 March 1966 (34 females); 3 April 1966 (19 females); near Maipu, 33°30'S 70°55'W, 510 m, M.E Irwin, Malaise, 2 February 1966 (1 female); 12 February 1966 (7 females); 14 February 1966 (20 females); 21 February 1966 (2 females); 12 March 1966 (8 females); 16 March 1966 (18 females); 17 March 1966 (3 females); 550 m, 24 March 1966 (24 females; 4 females, MNRJ); E.I. Schlinger, 14 January 1966 (1 female); **El Canelo**: 33°37'S 71°35'W, 950 m, E. I. Schlinger, 10 January 1966 (3 females); **Lagunas**: Magallanes, night, C.W. & L. O'Brien, 13 January 1968 (1 female); **Nuble**: 40 km east of San Carlos, Ross and Michelbacher, 23 December 1950 (1 female); **Aconcagua**: Zapallar, Ross and Michelbacher, 15 December 1950 (1 female).

NOTES.—The species was previously recorded only from Malleco (Soares and Carvalho 2005b).

Palpibracus chilensis (Bigot, 1885)

LECTOTYPE.—Male, deposited at Oxford University Museum of Natural History (Oxford, UK). Type-locality: Chile.

DIAGNOSIS.—Palpus yellow; antennae dark brown, apex of pedicelum and base of flagellum yellow; frons brown; female with interfrontal setae; katapimeron ciliated; dorsum of mesonotum yellow with a median blackish brown vitta reaching the base of scutellum and almost reaching the dorsocentral row of setae (Fig. 4); anepisternum, anepimeron and almost the whole meron brown (Fig. 5); legs yellow with fore femur brown at middle and hind femur faint brown on apical third, in the male examined; male legs: fore coxa with apical spine; mid femur with a median depression on anterior surface; hind tibia bent with anteroventral and posteroventral fine setae as in Fig. 56a (Malloch, 1934); abdomen blackish brown with grayish pollinosity (Fig. 6).

COLOR VARIATION.—The two studied specimens show a brown lateral spot behind pronotum.

MATERIAL EXAMINED.—**CHILE**: **Malleco**: 30 km W Angol, Nahuelbuta, 37°48'S 72°43'W, 1060 m., E.I. Schlinger, 13 February 1967 (1 male); **Magallanes**: 40 km W Laguna Amarga, 50° 59'S 72°45'W, M.E. Irwin and E.I. Schlinger, 7 December 1966 (1 female).

NOTES.—A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). The species was previously recorded from Curico and Malleco (Soares and Carvalho 2005b).

Palpibracus confusus (Malloch, 1928)

HOLOTYPE.—Male, deposited at The Natural History Museum (London, UK). Type-locality: Argentina, Chubut, Valle del Lago Blanco.

DIAGNOSIS.—Palpus brown; antennae dark brown, some specimens with apex of pedicelum and base of flagellum yellow; frons reddish brown; female without interfrontal setae; katapimeron ciliated; dorsum of mesonotum yellow with a median blackish brown vitta more or less as wide as the acrostichal row of setae and not reaching the base of scutellum; (Fig. 7); pleurae yellow, with inferior half of anepisternum and anepimeron shiny brown (Fig. 8); fore leg brown, with femoro-tibial joint yellow; mid and hind legs brown, with femora with basal third yellow; male legs: fore coxa with apical spine; mid femur with a marked depression on apical half of anterior surface; hind tibia bent with anteroventral and posteroventral rows of fine setae; abdomen blackish brown with grayish pollinosity (Fig. 9).

COLOR VARIATION.—Malloch (1934) described the color of the palpus as “fuscous paler at base”, but in Soares and Carvalho's (2005b) key, *P. confusus* appears to have yellow palpi. We consider the color as described by Malloch (1934), to be more accurate.

MATERIAL EXAMINED.—**CHILE**: **Nuble**: 40 km east of San Carlos, Ross and Michelbacher, 23

December 1950 (1 male; 1 male MNRJ, 4 females; 1 female MNRJ); **Cautin**: 20 km east of Temuco, Ross and Michelbacher, 8 January 1951 (1 male); **Santiago**: El Canelo, 33°37'S 71°35'W, 950 m, El. Schlinger, 10 January 1967 (1 female); Quebrada de la Plata, 33°30'S 70°55'W, 550 m, M.E. Irwin, Malaise, 24 March 1966 (1 female); Fundo de la Montana Estero la Palma at Rio Temo, 6 km E Los Quenes, M.E. Irwin, 4 January 1967 (2 males).

NOTES.— A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). The species was previously recorded from several localities in Chile and Argentina (Soares and Carvalho 2005b); ours is the first record from Santiago.

Palpibracus flavithorax Couri and Penny, sp. nov.

HOLOTYPE.— Male, deposited at CAS, labeled: "CHILE: **Magallanes**: 4 km W Laguna Amarga, 50°59'S 72°45'W, M.E. Irwin and E.I. Schlinger, 7 December 1966.

DIAGNOSIS.— Palpus brown; antennae dark brown, with apex of pedicelum paler in some specimens; frons dark brown, reddish close to lunule; female without interfrontal setae; katepimeron bare; dorsum of mesonotum yellow without median vitta, a little gray pollinosity on acrostichal and dorsocentral rows of setae, more visible pre-suturally (Fig. 10); pleura with anepisternum, anepimeron and anterior and posterior spiracles yellow; katepisternum and meron brown (Fig. 11); legs brown; male legs: fore coxa with a thin spine; mid femur with a depression on central part of anterior surface; row of long posteroventral setae, except on basal fourth; hind tibia slightly bent with anteroventral and posteroventral fine setae on middle third; abdomen brown with grayish pollinosity (Fig. 12).

The name of this species refers to the totally yellow dorsum of mesonotum with no traces of brown vitta.

MALE.— Length. Body: 7.5–8.5 mm; wing 7.5–8.5 mm.

GENERAL COLORATION.— Frons dark brown, reddish closer to lunule; fronto orbital plate brown; gena reddish brown above and yellow below. Palpus brown. Antenna brown with apex of pedicelum paler; dorsum of mesonotum yellow with no median vitta, a little gray pollinosity on acrostichal and dorsocentral rows of setae, more visible pre-suturally (Fig. 10); pleura with anepisternum, anepimeron and anterior and posterior spiracles yellow; katepisternum and meron brown (Fig. 11). Calypters and haltere yellow. Wing hyaline. Legs brown. Abdomen blackish brown with grayish pollinosity (Fig. 12).

HEAD.— Holoptic; anterointernal facets developed. Frontal row with 8–9 pairs of setae. Vertical internal and external similar in length. Antenna inserted a little below the medium level of eyes; flagellum about twice the pedicelum length. Palpi falciform.

THORAX.— Dorsocentrals 2:4; acrostichals 3 pairs pre-suturally and one long post-sutural pair inserted at the same level as the fourth dorsocentral; postpronotals: 1 presutural; 2 intralar; 1 prealar; 2 supralars; 2 postsupralars. Notopleuron with two setae, the posterior shorter than the anterior. Scutellum with one faint pair of basal setae, 1 strong pair of sub-basal; 1 pair preapical lateral and 1 strong pair apical setae. Anepisternum with a series of 7–8 strong setae: 3 thin setae on anterior angle. Katepisternals 1:3. Katepimeron bare. Inferior calypter about 1.6–1.8 the length of the superior. Wing vein R_{4+5} and M_{1+2} almost parallel to apex. Anterior coxa with a thin apical spine. Mid femur on anterior surface with a central depression, row of long posteroventral setae, except on basal fourth; posterior to posterodorsal surface with 4 preapical setae; mid tibia with 4–5 setae posterodorsals and posteroventrals; strong apical setae on anteroventral, ventral and dorsal surfaces; hind femur with 4–5 anteroventral setae on apical third; anterodorsal surface with a complete row of setae, fine on basal half and strong on apical; hind tibia slightly bent with 2–3 anterodorsal and posterodorsal sparse setae; anteroventral and posteroventral fine setae on middle third.

TERMINALIA.— Sternite 5 as long as wide, with two long setae on each side, close to margin (Fig. 35). Cercal plate wider than long, surstili large (Fig. 36). Hypandrium and aedeagus as in Fig. 37–38.

FEMALE.— Length. Body: 7.5–8.5 mm; wing: 7.5–8.5 mm. Differs from male as follows: interocular space about one third of head width; hind tibia not bent.

OVIPOSITOR.— Tergites and sternites 6 and 7 thin, tergite 8 wider. Epiproct with short and strong spines (Figs 39–40). Spermatheca as in Fig. 41.

OTHER MATERIAL EXAMINED.— PARATYPES labeled: **CHILE: Magallanes:** 4 km W Laguna Amarga, 51°00'S 72°48'W, Malaise, 300 m. E.I. Schlinger and M.E. Irwin 7 December 1966 (1 male, 1 male and 1 female. MNRJ); 8 December 1966 (1 male); **Santiago:** Quebrada de la Plata, 33°30'S 70°55'W, near Maipu, Malaise, 550 m, M.E. Irwin, 16 March 1966 (1 female); Rinconada, Maipu, 30°31'S 70°47'W, Malaise, 550 m. M.E. Irwin, 22 March 1966 (1 female); 23 March 1966 (1 female); 27 March 1966 (2 females); 3 April 1966 (1 female). **Bio Bio:** El Abanico, Ross and Michelbacher, 30 December 1950 (1 male).

DISCUSSION.— *P. flavithorax* can be easily distinguished from its congeners by the dorsum of mesonotum being totally yellow, with no black vittae, and the spine on fore coxa being much thinner than in all other species in which this structure is present.

Palpibracus nigriventris (Malloch, 1928)

HOLOTYPE.— Female, deposited at United States National Museum (Washington, USA). Type-locality: Chile.

DIAGNOSIS.— Male with dorsal eye facets very enlarged; palpus and antenna dark brown; frons dark brown; female with interfrontal setae; katepimeron bare; dorsum of mesonotum yellow with a wide median blackish brown vitta, reaching the base of scutellum and extending to dorsocentral row of setae (Fig. 13); pleurae with anepisternum and anepimeron yellow and katepisternum and meron brown (Fig. 14); legs brown; male legs: fore coxa without apical spine; mid femur with no depression; 2 posteroventral straight and erect setae on basal half; hind tibia bent with an anteroventral row of fine setae and a posteroventral sub-median fine tuft of long setae (Fig. 50a, Malloch, 1934); abdomen shiny blackish brown with very little grayish pollinosity (Fig. 15).

COLOR VARIATION.— The series examined does not show color variation.

MATERIAL EXAMINED.— **CHILE: Magallanes:** 40 km W Laguna Amarga, 50°59'S 72°45'W, M.E. Irwin and E.I. Schlinger, 7 December 1966 (3 males); **Llanquihue:** Petruhue, 100 m, Notofagus Forest, M.E. Irwin and E.I. Schlinger, 15 November 1966 (1 male; 1 male, MNRJ, and 3 females); 41° 08'S 72° 25'W, 100 m. M.E. Irwin and E.I. Schlinger, Malaise, 15 November 1966 (1 male and 1 female); **Malleco:** Nahuelbuta National Park, 30 km W Angol, E.I. Schlinger, 12 February 1967 (1 male); **Osorno:** 8 km W la Picada. "El Refugio", Volcan Osorno, 41° 04'S 72°26'W, 350 m, E.I. Schlinger, 6 February 1967 (7 males; 1 male, MNRJ, and 10 females; 1 female, MNRJ); Puerto Varas, Ross and Michelbacher, 16 January 1951 (1 female); **Tierra del Fuego:** 35 km SW Cameron, 30 m, *Notofagus* Forest, M.E. Irwin, 2 December 1966 (1 female).

NOTES.— A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). The species was previously recorded from several localities in Chile and Argentina (Soares and Carvalho 2005b); ours are the first records from Osorno and Tierra del Fuego.

Palpibracus peruvianus (Malloch, 1929)

HOLOTYPE.— Male, deposited at United States National Museum (Washington, USA). Type-locality: Chile, Perales.

DIAGNOSIS.— Palpus yellow; antennae dark brown, some specimens with pedicel reddish brown; frons dark brown; female with interfrontal setae; katepimeron bare; dorsum of mesonotum

brown with grayish pollinosity with 4 shining dark vittae; postpronotum yellow; scutellum yellow on sides and with a median dark brown vitta (Fig. 16); pleurae dark brown with gray pollinosity (Fig. 17); legs brown; male legs: fore coxa without apical spine; mid femur without depression, 10–12 long and strong straight setae on basal half; hind tibia straight with fine, short and scattered fine posteroventral setae (Fig. 58c, Malloch, 1934, as *angolensis*); abdomen yellow with a brown median vitta on tergites 1+2–4; tergites 3 and 4 with a triangular dark brown lateral spot; tergite 5 dark brown on basal third; tergites 3–5 with gray pollinosity on basal third, in certain lights (Fig. 18); tergite 5 yellow in female (Fig. 19).

COLOR VARIATION.— The color of the abdomen, especially in males, can be a little darker than in females, with tergite 4 darker laterally.

MATERIAL EXAMINED.— **CHILE: Santiago:** Quebrada de La Plata, 33°30'S 70°55'W, M.E. Irwin, 550 m, Malaise, 12 March 1966 (4 females); 16 March 1966 (4 females); 17 March 1966 (5 females, 1 female, MNRJ); 24 March 1966 (56 females); near Maipu, 510 m, 8 February 1966 (1 female); 9 February 1966 (3 females); 10 February 1966 (1 female); 12 February 1966 (54 females); 21 February 1966 (1 female); 9 March 1966 (15 females); 12 March 1966 (8 females, 2 females, MNRJ); 16 March 1966 (3 females); 17 March 1966 (7 females); 23 March 1966 (4 females); 24 March 1966 (66 females), 17 October 1966 (1 male); Rinconada, Maipu, 33°31'S 70°47'W, M.E. Irwin, 26 January 1966 (1 female); 550 m, Malaise, 22 March 1966 (42 females); 23 March 1966 (15 females); 24 March 1966 (1 female); 27 March 1966 (182 females); 3 April 1966 (2 females); 510m, 26 January 1966 (1 female); 23 March 1966 (11 females); 24 March 1966 (33 females); 27 March 1966 (39 females); 3 April 1966 (19 females); 33°34'S 71°14'W, 450 m, Malaise-Corn, N. Hichins and M.E. Irwin, 17 March 1966 (2 females); 33°31'S 70°47'W, 450 m, N. Hichins and M.E. Irwin, 1 April 1966 (1 female); 15 km east de Las Condes, 33°25'S 70°35'W, M.E. Irwin, 19 March 1966 (1 female); **Coquimbo:** Fray Jorge National Park, 15 km SW Pachingo, 100–200 m, E.I. Schlinger and M.E. Irwin, 20 October 1966 (1 female); Hacienda Illapel, 600–900 m, 31°36'S 71°07'W, Schlinger, Irwin and Peña, 19 October 1966 (2 males, female); **Cautin:** 2 km SE Villarica, 140 m, E.I. Schlinger and M.E. Irwin, 18 December 1966 (1 male; 1 male, MNRJ). **ARGENTINA: Neuquen:** Martin de Los Andes, W.W. Middlekauff, 7 April 1980 (1 female).

NOTES.— A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). The species was previously recorded from Bio Bio, Curico, Malleco, and Perales in Chile and in Rio Negro in Argentina (Soares and Carvalho 2005b); all of our locality records (see Material examined above) are new.

Palpibracus pilosus (Macquart, 1851)

LECTOTYPE.— Male, deposited at Museum National d'Histoire Naturelle (Paris, France). Type-locality: Chile, Magellan Strait.

DIAGNOSIS.— Palpus yellow; antennae with pedicel yellow and flagellum brown; katopimeron pilose; dorsum of mesonotum blackish with two gray pollinose vittae to dorsocentral row of setae; postpronotum, scutellum and lateral dorsum of mesonotum yellow post-suturally (Fig. 20); pleura brownish, concolorous with dorsum of mesonotum; katopisternum with dark yellow areas in some specimens (Fig. 21); legs brown, with fore femur, middle and hind third (except apex) of hind femur and basal half of hind tibia blackish brown; fore coxa with apical spine (2–3 on each side); mid femur without depression; posteroventral surface with about 8 or more strong setae on basal third in an irregular series; hind femur bent; hind tibia strongly bent with long anteroventral and posteroventral fine setae on apical half; abdomen shiny black brown with grayish pollinosity (Fig. 22).

MATERIAL EXAMINED.— **CHILE: Tierra del Fuego:** 35 km SW Cameron, 30 m, wet *Notofagus* Forest, E.I. Schlinger and M.E. Irwin, 2 December 1966 (13 males; 2 males, MNRJ); **Magallanes:** 4 km W Laguna Amarga, 50°59'S 72°45'W, M.E. Irwin and E.I. Schlinger, 7 December 1966 (1 female).

NOTES.— A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). Males are easily distinguished by the numerous (8 or

more) strong setae on basal third of posteroventral surface. The species has already been recorded from our localities (see Soares and Carvalho 2005b).

Palpibracus schlingeri Couri and Penny, sp. nov.

HOLOTYPE.— Male, deposited at CAS, labeled: "CHILE: **Santiago**, Quebrada de la Plata, Near Maipu, 510 m, 33°30'S 70°55'W, Malaise, M.E. Irwin, 2 February 1966."

DIAGNOSIS.— Palpus brown; antennae dark brown, with apex of pedicelum yellow; frons dark brown, reddish orange close to lunule; female without interfrontal setae; katepimeron bare; dorsum of mesonotum shiny yellow with a median blackish brown vitta not reaching base of scutellum and not larger than the acrostichal row of setae (Fig. 23); pleura with anepisternum and anterior and posterior spiracles yellow; katepisternum and meron shiny black (Fig. 24); legs brown; male legs: fore coxa without apical spine; mid femur without depression; row of posteroventral setae sparse and stronger on apical two-thirds; hind tibia a little sinuous with anteroventral and posteroventral fine setae on middle third; abdomen shiny blackish brown with grayish pollinosity (Fig. 25).

MALE.— Length. Body: 7–8 mm; wing: 7.5–8 mm.

GENERAL COLORATION.— Frons dark brown, reddish close to lunule; fronto orbital plate brown, silvery pollinose; gena and palpus brown. Antenna brown with apex of pedicel yellow. Dorsum of mesonotum shiny yellow with a median blackish brown vitta not reaching base of scutellum and not larger than the acrostichal row of setae (Fig. 23); postpronotum and scutellum yellow; pleura with anepisternum and anterior and posterior spiracles yellow; katepisternum and meron shiny black (Fig. 24). Calypters and haltere yellow. Wing hyaline. Legs brown. Abdomen brown with grayish pollinosity (Fig. 25).

HEAD.— Holoptic; anteroventral facets developed. Frontal row with 6 pairs of setae. Vertical internal and external short, similar in length. Antenna inserted at medium level of eyes; flagellum about twice the pedicelum length. Palpi falciform.

THORAX.— Dorsocentrals 2:4; acrostichals 2 pairs of pre-suturals and an irregular series of short setae post-suturally the last one as long as the dorsocentrals; 2 postpronotals; 1 presutural; 2 intralars; 1 prealar; 2 supralars; 2 postsupralars. Notopleuron with two setae, the posterior shorter than the anterior. Scutellum with one pair of basal fine setae, 1 strong sub-basal, 1 pre-apical fine and 1 strong apical. Anepisternum with a series of 7–8 strong setae; 2 thin setae on anterior angle. Katepisternals 1:2. Katepimeron bare. Inferior calypter about 1.8 the length of the superior. Wing vein R4+5 and M1+2 parallel to apex. Anterior coxa without an apical spine. Mid femur with 4 preapical setae on posterior surface; row of posteroventral setae sparse, stronger on apical two-thirds. Mid tibia on anterodorsal and posterodorsal surfaces with 4–5 setae; ventral posteroventral and ventral surfaces with an apical seta. Hind femur with a complete row of anterodorsal setae; anteroventral surface with 4–5 setae on apical third; dorsal and posterodorsal surfaces with preapical setae; anteroventral surface with a row of 5 setae on basal third and anterodorsal surface with a complete row of setae. Hind tibia a little sinuous with anteroventral and posteroventral fine setae on middle third; anterodorsal surface with 5 sparse setae, posterodorsal surface with two setae at the end of median third.

TERMINALIA.— Sternite 5 longer than wide, with 2–3 stronger setae close to margin (Fig. 42). Cercal plate with a deep incision on posterior margin, surstyli large (Fig. 43). Hypandrium and aedeagus as in Figs 44–46.

FEMALE.— Length. Body: 7–8 mm, wing: 7.5–8 mm. Differs from male as follows: interocular space about one third of head width; hind tibia not sinuous and without the anteroventral and posteroventral fine setae on middle third.

OVIPOSITOR.— Long, with tergites and sternites somewhat developed, tergite 8 wider; epiproct with thin setae (Figs 47–48).

OTHER MATERIAL EXAMINED.— PARATYPES labeled: same label as holotype, 2 February 1966 (1 female); 8 February 1966 (1 female); 9 February 1966 (1 female); 12 February 1966 (1 female); 14 February 1966 (3 females); 12 March 1966 (1 female); 16 March 1966 (3 females; 1 female, MNRJ); 23 March 1966 (1 female, 1 female, MNRJ); 24 March 1966 (2 females); 3 April 1966 (1 female); 550 m; 12 March 1966 (1 female); 24 March 1966 (1 female); Rinconada, Maipu, 30°31'S 70°47'W, 23 March 1966 (7 females); 27 March 1966 (7 females); 3 April 1966 (1 female).

DISCUSSION.— *P. schlingeri*, new species, comes closest to couplet 13 in the Soares and Carvalho (2005b) key, but it can be distinguished by the median brown vitta not reaching the base of scutellum, the absence of the apical spine on male fore coxa, and the absence of the depression on the male mid femur.

Palpibracus spicatus (Malloch, 1934)

HOLOTYPE.— Male, deposited at The Natural History Museum (London, UK). Type-locality: Chile, Casa Pangué.

DIAGNOSIS.— Palpus brown; antennae dark brown, some specimens with apex of pedicelum and base of flagellum yellow; frons dark brown; female without interfrontal setae; katepimeron bare; dorsum of mesonotum yellow with a median blackish brown vitta reaching base of scutellum and only a little wider than the acrostichal row of setae; scutellum yellow; (Fig. 26); pleurae yellow, except katepimeron and meron brown (Fig. 27); legs brown; male legs: fore coxa with an apical spine; mid femur with a marked depression on central part of anterior surface; row of posteroventral setae long and fine basally and stronger on apical half; hind tibia slightly bent with anteroventral and posteroventral fine setae on apical two thirds (Fig. 58a, Malloch, 1934); abdomen brown with little grayish pollinosity (Fig. 28).

COLOR VARIATION.— In most specimens the median mesothoracic vitta is straight whereas in a few specimens it abruptly enlarges very close to the scutellum, almost extending to dorsocentral row of setae.

MATERIAL EXAMINED.— CHILE: **Santiago:** Quebrada de La Plata, 33°31'S 70°47'W, M.E. Irwin, 510 m, Malaise, 26 January 1966 (1 female); 16 March 1966 (1 female); 19 February 1966 (4 females); 20 February 1966 (5 females); 23 March 1966 (26 females); 24 March 1966 (32 females); 27 March 1966 (42 females); 3 April 1966 (55 females); 550 m, 22 March 1966 (4 females); 23 March 1966 (4 females); 27 March 1966 (32 females); N. Hichins O., 13 October 1966 (1 female); 33°30'S 70°55'W, near Maipu, 510 m, Malaise, 12 February 1966 (3 females); 14 February 1966 (16 females); 21 February 1966 (29 females); 9 March 1966 (2 females); 12 March 1966 (17 females, 1 female, MNRJ); 16 March 1966 (21 females; 2 females, MNRJ); 17 March 1966 (5 females); 23 March 1966 (6 females); 24 March 1966 (34 females); 550 m, 12 February 1966 (1 female); 16 March 1966 (4 females); 17 March 1966 (2 females); 24 March 1966 (5 females; 1 female, MNRJ); 33°30'S 70°50'W, 510 m, 2 February 1966 (4 females); 10 February 1966 (1 female); 12 February 1966 (2 females); 14 February 1966 (2 females); 9 March 1966 (7 females); 12 March 1966 (14 females); 14 March 1966 (1 female); 16 March 1966 (15 females); El Canelo, 33°35'S 70°27'W, 9 January 1967, M.E. Irwin (1 female); **Llanquihue:** NW Shore of Lago Chapo, E.I. Schlinger and M.E. Irwin, 13 November (1 male); **Osorno:** 30 km W of Purranque, Ross and Michelbacher, 16 January, 1951 (1 male); **Curico:** Fundo la Montana, Estero la Plama at Rio Teno, 6 km E Los Quenes, M. E. Irwin, 4 January 1967 (1 female).

NOTES.— A full redescription of this species, including illustrations of male and female terminalia, was published by Carvalho (1989a). Llanquihue is a new geographic record for this species.

Palpibracus trivittatus (Malloch, 1934)

HOLOTYPE.— Male, deposited at The Natural History Museum (London, UK). Type-locality: Argentina, Lake Correontoso.

DIAGNOSIS.— Palpus brown; antennae dark brown, some specimens with apex of pedicelum and base of flagellum yellow; frons dark brown, reddish to lunule; female with interfrontal setae; katepimeron bare; dorsum of mesonotum yellow with three blackish brown vitta, sometimes fused in part, only the median reaches base of scutellum in some specimens; scutellum yellow (Fig. 29); pleurae yellow, except katepimeron and meron brown (Fig. 30); legs brown; male legs: fore coxa without an apical spine; mid femur without depression; with fine anteroventral and posteroventral row of setae; hind tibia almost straight with three or more anterodorsal and posterodorsal setae; row of anteroventral and posteroventral fine setae on basal half (Fig. 58b, Malloch, 1923a); abdomen brown with little grayish pollinosity (Fig. 31).

COLOR VARIATION.— Four females were examined and the vittae on mesonotum are not fused in one specimen and differently fused in the other three.

MATERIAL EXAMINED.— **CHILE:** **Malleco:** Parque Nacional Nahuelbuta, P.C. Huchison, 8 January 1952 (1 female); **Nuble:** 2–7 km (no direction given on label) Las Trancas, Malaise, E.I. Schlinger, 29 January 1967 (1 female); **Valdivia:** 24 km S Valdivia, E.I. Schlinger, 3 February 1967 (1 female, MNRJ); **Cautin:** 12,3 km N Loncoche, 280 m. E.I. Schlinger and M.E. Irwin, 18 December 1966 (1 female).

NOTES.— A full redescription of this species with illustrations of male and female terminalia is found in Carvalho (1989a). No males examined. The male characters on diagnoses are from Malloch (1934) and Carvalho (1989a). Nuble, Valdivia, and Cautin are new geographical records for this species.

Palpibracus vittatus Couri and Penny, sp. nov.

HOLOTYPE.— Male, deposited at CAS, labeled: "CHILE: **Cautin:** 20 km E of Temuco, Ross and Michel/bacher, 8 January 1951."

DIAGNOSIS.— Palpus and antennae brown; frons dark brown; female without interfrontal setae; katepimeron bare; dorsum of mesonotum shiny yellow with a median blackish brown vitta between acrostichal row of setae pre-suturally, becoming wider post-suturally reaching the dorsocentral row of setae and reaching base of scutellum (Fig. 32); pleura with anepisternum and anepimeron yellow; katepisternum and meron shiny brown (Fig. 33); legs brown; male legs: fore coxa with a strong apical spine; mid femur with a marked depression on central part of anterior surface, with a group of short, strong and curved setae on its apex; posteroventral surface with long and strong setae on apical third; hind tibia bent with a complete row of fine anteroventral setae, posteroventral surface with a group of setae with curved apex on apical third, but not reaching the apex of the leg; abdomen shiny blackish with grayish pollinosity (Fig. 34).

The name of this species is derived from the Latin *vitta*, in reference to the unusual shape of the median vitta on the dorsum of the mesothorax.

MALE.— Length. Body: 7.8 mm; wing: 8 mm

GENERAL COLORATION.— Frons dark brown; fronto orbital plate brown; gena brown in male and dark yellow in female. Palpus and antenna brown. Postpronotum and scutellum yellow; dorsum of mesonotum shiny yellow with a median blackish brown vitta between acrostichal row of setae, becoming wider post-suturally reaching the dorsocentral row of setae and base of scutellum (Fig. 32); pleura with anepisternum and anepimeron yellow; katepisternum and meron shiny brown (Fig. 33); calypters and haltere yellow. Wing hyaline. Legs brown. Abdomen shiny brown with grayish pollinosity (Fig. 34).

HEAD.— Holoptic; antero-internal facets developed. Frontal row with 6 pair of setae. Vertical internal and external setae short and similar in length. Antenna inserted at middle of eye; flagellum about twice the pedicel length. Palpi falciform.

THORAX.— Dorsocentrals 2:4; acrostichals: 2 pair of presuturals and irregular series of short setae post-suturally, the last one as long as the dorsocentral; 2 postpronotals; 1 presutural; 2 intralars; 1 prealar; 2 supralars; 2 postsupralars. Notopleuron with two setae, the posterior shorter than the anterior. Scutellum with one pair of basal setae, 1 strong sub-basal, 1 pre-apical and 1 strong apical. Anepisternum with a series of 6–7 strong setae; 2 thin setae on anterior angle. Katepisternals 1:2. Katepimeron bare. Inferior calypter about 1.8 the length of the superior. Wing vein R_{4+5} and M_{1+2} a little divergent to apex. Anterior coxa with a strong apical spine. Male mid femur with a marked depression on central part of anterior surface, with a group of short, strong and curved setae on its apex; anteroventral and posteroventral surfaces with long and strong setae on apical third; posteroventral surface with 4 strong setae on basal third; 3 preapical setae on dorsal to posterodorsal surfaces. Mid tibia with 3 ventral setae on middle third; posteroventral surface with 4 sparse setae on apical two-thirds. Hind femur with a complete anterodorsal row of setae; anteroventral surface with setae on apical third; hind tibia bent with a complete row of fine anteroventral setae, posteroventral surface with a group of setae with curved tip on apical third, but not reaching the apex; anterodorsal surface with a row of sparse setae stronger closer to apex.

TERMINALIA.— Sternite 5 a little longer than wide, except in middle (Fig. 49). Cercal plate with a deep anterior incision, surstili large (Fig. 50). Hypandrium and aedeagus as in Figs 51–52.

FEMALE.— Length. 7.8 mm, wing: 8 mm. Differs from male as follows: interocular space about one third of head width; fore coxa with no spines; mid femur without the sexual secondary characters; hind tibia not bent and with 3 anterodorsal setae; 2 posterodorsals inserted at the limits of each third and 2 anteroventrals on middle third.

OVIPOSITOR.— General shape a little thinner than in other species and with cerci very short (Figs 53–54).

OTHER MATERIAL EXAMINED.— PARATYPE labeled: CHILE: **Santiago:** Quebrada de la Plata Fundo, Rinconada, Maipu, 33°31'S 70°47'W, 510 m, M.E. Irwin, 26 January 1966 (1 female).

DISCUSSION.— Although *P. vittatus* comes out at couplet 11 in Soares and Carvalho's (2005b) key, it can be easily distinguished from its congeners by the peculiar median stripe on mesonotum that enlarges post-suturally, reaching the dorsocentral row of setae.

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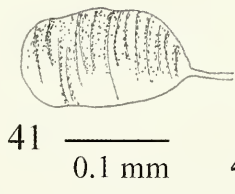
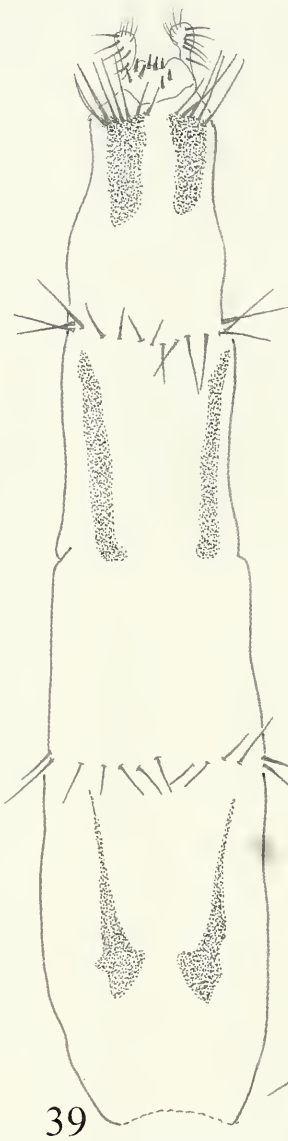
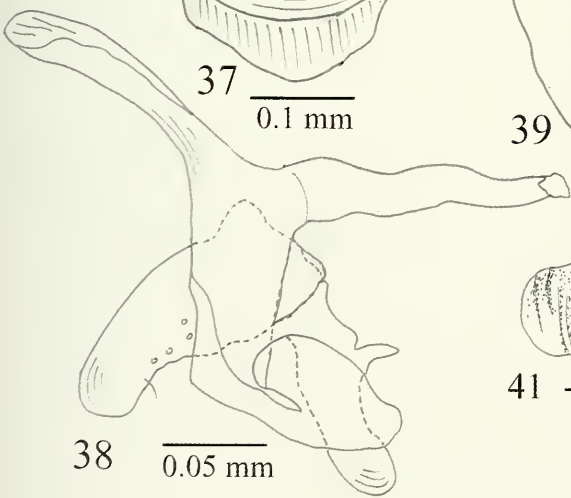
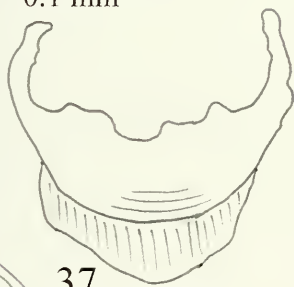
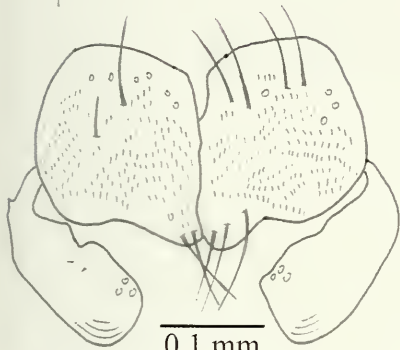
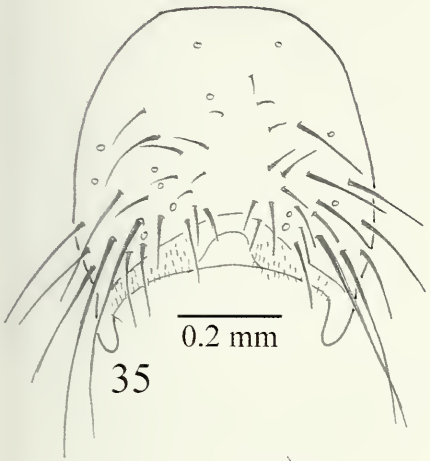
- FIGURE 1. *Palpiracus carvalhoi* Lopes and Khouri, 1996: dorsum of mesothorax
FIGURE 2. *Palpiracus carvalhoi* Lopes and Khouri, 1996: pleurae
FIGURE 3. *Palpiracus carvalhoi* Lopes and Khouri, 1996: dorsum of abdomen
FIGURE 4. *Palpibracus chilensis* (Bigot, 1885): dorsum of mesothorax
FIGURE 5. *Palpibracus chilensis* (Bigot, 1885): pleurae
FIGURE 6. *Palpibracus chilensis* (Bigot, 1885): dorsum of abdomen
FIGURE 7. *Palpibracus confusus* (Malloch, 1928): dorsum of mesothorax
FIGURE 8. *Palpibracus confusus* (Malloch, 1928): pleurae
FIGURE 9. *Palpibracus confusus* (Malloch, 1928): dorsum of abdomen
FIGURE 10. *Palpibracus flavithorax* Couri and Penny, new species: dorsum of mesothorax
FIGURE 11. *Palpibracus flavithorax* Couri and Penny, new species: pleurae
FIGURE 12. *Palpibracus flavithorax* Couri and Penny, new species: dorsum of abdomen
FIGURE 13. *Palpibracus nigriventris* (Malloch, 1928): dorsum of mesothorax
FIGURE 14. *Palpibracus nigriventris* (Malloch, 1928): pleurae
FIGURE 15. *Palpibracus nigriventris* (Malloch, 1928): dorsum of abdomen
FIGURE 16. *Palpibracus peruvianus* (Malloch, 1929): dorsum of mesothorax
FIGURE 17. *Palpibracus peruvianus* (Malloch, 1929): pleurae
FIGURE 18. *Palpibracus peruvianus* (Malloch, 1929): dorsum of abdomen, male
FIGURE 19. *Palpibracus peruvianus* (Malloch, 1929): dorsum of abdomen, female



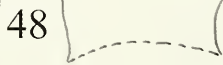
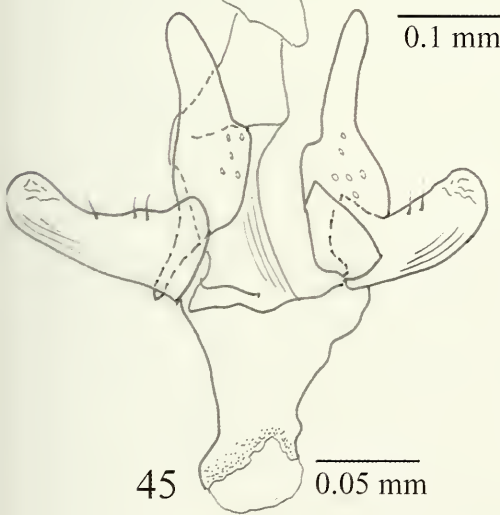
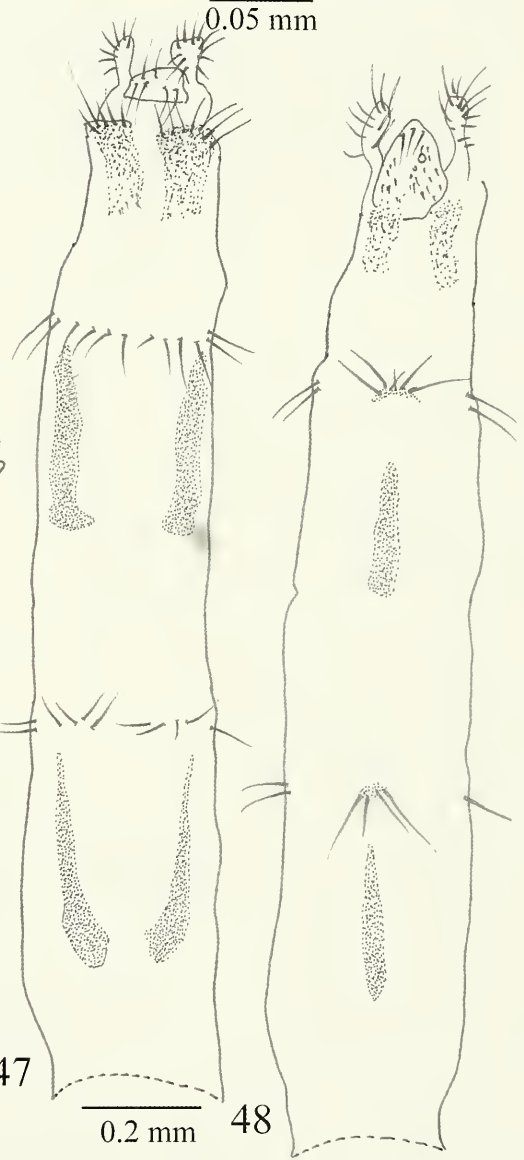
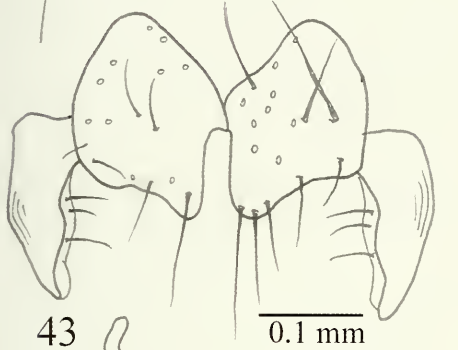
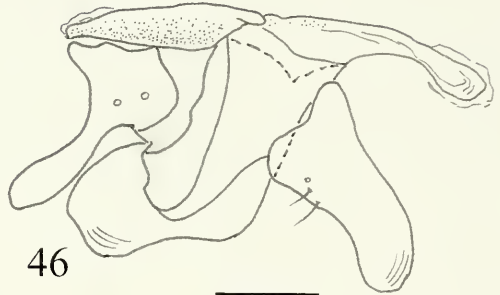
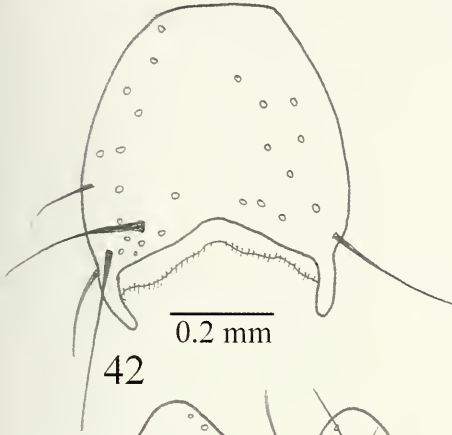
- FIGURE 20. *Palpibracus pilosus* (Macquart, 1851); dorsum of mesothorax
FIGURE 21. *Palpibracus pilosus* (Macquart, 1851); pleurae
FIGURE 22. *Palpibracus pilosus* (Macquart, 1851); dorsum of abdomen
FIGURE 23. *Palpibracus schlingeri* Couri and Penny, new species; dorsum of mesothorax
FIGURE 24. *Palpibracus schlingeri* Couri and Penny, new species; pleurae
FIGURE 25. *Palpibracus schlingeri* Couri and Penny, new species; dorsum of abdomen
FIGURE 26. *Palpibracus spicatus* (Malloch, 1934); dorsum of mesothorax
FIGURE 27. *Palpibracus spicatus* (Malloch, 1934); pleurae
FIGURE 28. *Palpibracus spicatus* (Malloch, 1934); dorsum of abdomen
FIGURE 29. *Palpibracus trivittatus* (Malloch, 1934); dorsum of mesothorax
FIGURE 30. *Palpibracus trivittatus* (Malloch, 1934); pleurae
FIGURE 31. *Palpibracus trivittatus* (Malloch, 1934); dorsum of abdomen
FIGURE 32. *Palpibracus vittatus* Couri and Penny, new species; dorsum of mesothorax
FIGURE 33. *Palpibracus vittatus* Couri and Penny, new species; pleurae
FIGURE 34. *Palpibracus vittatus* Couri and Penny, new species; dorsum of abdomen



- FIGURE 35. *Palpibracus flavithorax* Couri and Penny, new species; male, sternite 5
FIGURE 36. *Palpibracus flavithorax* Couri and Penny, new species; male, cercal plate and surstily, dorsal view
FIGURE 37. *Palpibracus flavithorax* Couri and Penny, new species; male, hypandrium
FIGURE 38. *Palpibracus flavithorax* Couri and Penny, new species; male, aedeagus, lateral view
FIGURE 39. *Palpibracus flavithorax* Couri and Penny, new species; female, ovipositor, dorsal view
FIGURE 40. *Palpibracus flavithorax* Couri and Penny, new species; female, ovipositor, ventral view
FIGURE 41. *Palpibracus flavithorax* Couri and Penny, new species; female, spermathecae



- FIGURE 42. *Palpibracus schlingeri* Couri and Penny, new species: male, sternite 5
FIGURE 43. *Palpibracus schlingeri* Couri and Penny, new species: male, cercal plate and surstily, dorsal view
FIGURE 44. *Palpibracus schlingeri* Couri and Penny, new species: male, hypandrium
FIGURE 45. *Palpibracus schlingeri* Couri and Penny, new species: male, aedeagus, dorsal view
FIGURE 46. *Palpibracus schlingeri* Couri and Penny, new species: male, aedeagus, lateral view
FIGURE 47. *Palpibracus schlingeri* Couri and Penny, new species: female, ovipositor, dorsal view
FIGURE 48. *Palpibracus schlingeri* Couri and Penny, new species: female, ovipositor, ventral view



- FIGURE 49. *Palpipracus vittatus* Couri and Penny, new species; male, sternite 5
FIGURE 50. *Palpipracus vittatus* Couri and Penny, new species; male, cercal plate and surstily, dorsal view
FIGURE 51. *Palpipracus vittatus* Couri and Penny, new species; male, hypandrium
FIGURE 52. *Palpipracus vittatus* Couri and Penny, new species; male, aedeagus, lateral view
FIGURE 53. *Palpipracus vittatus* Couri and Penny, new species; female, ovipositor, dorsal view
FIGURE 54. *Palpipracus vittatus* Couri and Penny, new species; female, ovipositor, ventral view

